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FILE 'HOME' ENTERED AT 14:45:04 ON 30 SEP 2008

=> fil .bec
COST IN U.S. DOLLARS                              SINCE FILE      TOTAL
                                                       ENTRY    SESSION
FULL ESTIMATED COST                                     0.21       0.21

FILES 'MEDLINE, SCISEARCH, LIFESCI, BIOTECHDS, BIOSIS, EMBASE, HCAPLUS, NTIS,
       ESBIOBASE, BIOTECHNO, WPIDS' ENTERED AT 14:45:48 ON 30 SEP 2008
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11 FILES IN THE FILE LIST

=> s oligosaccharide# or lacto n neotetraose or LNnT or polylactosamine
FILE 'MEDLINE'
         28942 OLIGOSACCHARIDE#
           909 LACTO
        931803 N
           129 NEOTETRAOSE
           124 LACTO N NEOTETRAOSE
                 (LACTO(W)N(W)NEOTETRAOSE)
            21 LNNT
           199 POLYLACTOSAMINE
L1       29063 OLIGOSACCHARIDE# OR LACTO N NEOTETRAOSE OR LNNT OR POLYLACTOSAMI
               NE

FILE 'SCISEARCH'
         33037 OLIGOSACCHARIDE#
           797 LACTO
       1524456 N
           134 NEOTETRAOSE
           125 LACTO N NEOTETRAOSE
                 (LACTO(W)N(W)NEOTETRAOSE)
            23 LNNT
           207 POLYLACTOSAMINE
L2       33190 OLIGOSACCHARIDE# OR LACTO N NEOTETRAOSE OR LNNT OR POLYLACTOSAMI
               NE

FILE 'LIFESCI'
          7755 OLIGOSACCHARIDE#
           234 "LACTO"
        290184 "N"
            55 "NEOTETRAOSE"
            54 LACTO N NEOTETRAOSE
                 ("LACTO"(W)"N"(W)"NEOTETRAOSE")
             7 LNNT
            50 POLYLACTOSAMINE
L3        7816 OLIGOSACCHARIDE# OR LACTO N NEOTETRAOSE OR LNNT OR POLYLACTOSAMI
               NE

FILE 'BIOTECHDS'
          3859 OLIGOSACCHARIDE#
            73 LACTO
         55100 N
            16 NEOTETRAOSE
            15 LACTO N NEOTETRAOSE
                 (LACTO(W)N(W)NEOTETRAOSE)
             5 LNNT
             7 POLYLACTOSAMINE
L4        3870 OLIGOSACCHARIDE# OR LACTO N NEOTETRAOSE OR LNNT OR POLYLACTOSAMI
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FILE 'BIOSIS'
          27797 OLIGOSACCHARIDE#
           3480 LACTO
        1183964 N
            126 NEOTETRAOSE
            121 LACTO N NEOTETRAOSE
                  (LACTO(W)N(W)NEOTETRAOSE)
             22 LNNT
            212 POLYLACTOSAMINE
L5        27998 OLIGOSACCHARIDE# OR LACTO N NEOTETRAOSE OR LNNT OR POLYLACTOSAMI
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FILE 'EMBASE'
          21069 OLIGOSACCHARIDE#
            812 "LACTO"
         908382 "N"
            125 "NEOTETRAOSE"
            117 LACTO N NEOTETRAOSE
                  ("LACTO"(W)"N"(W)"NEOTETRAOSE")
             19 LNNT
            174 POLYLACTOSAMINE
L6        21219 OLIGOSACCHARIDE# OR LACTO N NEOTETRAOSE OR LNNT OR POLYLACTOSAMI
                NE

FILE 'HCAPLUS'
          59522 OLIGOSACCHARIDE#
           1570 LACTO
        3224980 N
            219 NEOTETRAOSE
            212 LACTO N NEOTETRAOSE
                  (LACTO(W)N(W)NEOTETRAOSE)
             46 LNNT
            233 POLYLACTOSAMINE
L7        59714 OLIGOSACCHARIDE# OR LACTO N NEOTETRAOSE OR LNNT OR POLYLACTOSAMI
                NE

FILE 'NTIS'
            177 OLIGOSACCHARIDE#
              5 LACTO
          71684 N
              1 NEOTETRAOSE
              1 LACTO N NEOTETRAOSE
                  (LACTO(W)N(W)NEOTETRAOSE)
              0 LNNT
              1 POLYLACTOSAMINE
L8          179 OLIGOSACCHARIDE# OR LACTO N NEOTETRAOSE OR LNNT OR POLYLACTOSAMI
                NE

FILE 'ESBIOBASE'
          10142 OLIGOSACCHARIDE#
            293 LACTO
         422786 N
             82 NEOTETRAOSE
             78 LACTO N NEOTETRAOSE
                  (LACTO(W)N(W)NEOTETRAOSE)
             16 LNNT
            110 POLYLACTOSAMINE
L9        10249 OLIGOSACCHARIDE# OR LACTO N NEOTETRAOSE OR LNNT OR POLYLACTOSAMI
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```
FILE 'BIOTECHNO'
          9517 OLIGOSACCHARIDE#
           275 LACTO
        184936 N
            53 NEOTETRAOSE
            52 LACTO N NEOTETRAOSE
                 (LACTO(W)N(W)NEOTETRAOSE)
             8 LNNT
           113 POLYLACTOSAMINE
L10       9603 OLIGOSACCHARIDE# OR LACTO N NEOTETRAOSE OR LNNT OR POLYLACTOSAMI
               NE

FILE 'WPIDS'
          8794 OLIGOSACCHARIDE#
           555 LACTO
        859347 N
            28 NEOTETRAOSE
            25 LACTO N NEOTETRAOSE
                 (LACTO(W)N(W)NEOTETRAOSE)
            16 LNNT
            23 POLYLACTOSAMINE
L11       8812 OLIGOSACCHARIDE# OR LACTO N NEOTETRAOSE OR LNNT OR POLYLACTOSAMI
               NE

TOTAL FOR ALL FILES
L12     211713 OLIGOSACCHARIDE# OR LACTO N NEOTETRAOSE OR LNNT OR POLYLACTOSAMI
               NE

=> s l12(5a)(synthes? or produc?)
FILE 'MEDLINE'
        587169 SYNTHES?
       1515614 PRODUC?
L13       2276 L1 (5A)(SYNTHES? OR PRODUC?)

FILE 'SCISEARCH'
       1070821 SYNTHES?
       2199999 PRODUC?
L14       4017 L2 (5A)(SYNTHES? OR PRODUC?)

FILE 'LIFESCI'
        168339 SYNTHES?
        625866 PRODUC?
L15       1013 L3 (5A)(SYNTHES? OR PRODUC?)

FILE 'BIOTECHDS'
         38585 SYNTHES?
        250941 PRODUC?
L16       1363 L4 (5A)(SYNTHES? OR PRODUC?)

FILE 'BIOSIS'
        756018 SYNTHES?
       2197336 PRODUC?
L17       3518 L5 (5A)(SYNTHES? OR PRODUC?)

FILE 'EMBASE'
        700936 SYNTHES?
       1420394 PRODUC?
L18       2134 L6 (5A)(SYNTHES? OR PRODUC?)

FILE 'HCAPLUS'
       1765143 SYNTHES?
       4850346 PRODUC?
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```
       1112508 PRODN
       5383107 PRODUC?
                 (PRODUC? OR PRODN)
L19       8677 L7 (5A)(SYNTHES? OR PRODUC?)

FILE 'NTIS'
         44170 SYNTHES?
        385634 PRODUC?
L20         25 L8 (5A)(SYNTHES? OR PRODUC?)

FILE 'ESBIOBASE'
        239233 SYNTHES?
        735840 PRODUC?
L21       1372 L9 (5A)(SYNTHES? OR PRODUC?)

FILE 'BIOTECHNO'
        170699 SYNTHES?
        394590 PRODUC?
L22       1016 L10(5A)(SYNTHES? OR PRODUC?)

FILE 'WPIDS'
        167625 SYNTHES?
       2780790 PRODUC?
L23       1051 L11(5A)(SYNTHES? OR PRODUC?)

TOTAL FOR ALL FILES
L24      26462 L12(5A)(SYNTHES? OR PRODUC?)

=> s l24(5a)(coli or bacter? or microb? or microorganism?)
FILE 'MEDLINE'
        276401 COLI
        850834 BACTER?
        610802 MICROB?
         41741 MICROORGANISM?
L25         65 L13(5A)(COLI OR BACTER? OR MICROB? OR MICROORGANISM?)

FILE 'SCISEARCH'
        268271 COLI
        451304 BACTER?
        175523 MICROB?
         56205 MICROORGANISM?
L26         93 L14(5A)(COLI OR BACTER? OR MICROB? OR MICROORGANISM?)

FILE 'LIFESCI'
        114982 COLI
        237299 BACTER?
         70599 MICROB?
         46940 MICROORGANISM?
L27         50 L15(5A)(COLI OR BACTER? OR MICROB? OR MICROORGANISM?)

FILE 'BIOTECHDS'
         51385 COLI
        139070 BACTER?
         23573 MICROB?
         29625 MICROORGANISM?
L28         92 L16(5A)(COLI OR BACTER? OR MICROB? OR MICROORGANISM?)

FILE 'BIOSIS'
        333159 COLI
       1691531 BACTER?
        514011 MICROB?
       3305385 MICROORGANISM?
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```
L29          97 L17(5A)(COLI OR BACTER? OR MICROB? OR MICROORGANISM?)

FILE 'EMBASE'
        198924 COLI
        571741 BACTER?
        136848 MICROB?
        135081 MICROORGANISM?
L30          58 L18(5A)(COLI OR BACTER? OR MICROB? OR MICROORGANISM?)

FILE 'HCAPLUS'
        305896 COLI
        685281 BACTER?
        518883 MICROB?
        178044 MICROORGANISM?
L31         254 L19(5A)(COLI OR BACTER? OR MICROB? OR MICROORGANISM?)

FILE 'NTIS'
          2980 COLI
         19574 BACTER?
         13278 MICROB?
          9443 MICROORGANISM?
L32           1 L20(5A)(COLI OR BACTER? OR MICROB? OR MICROORGANISM?)

FILE 'ESBIOBASE'
         84908 COLI
        253801 BACTER?
        337658 MICROB?
         55995 MICROORGANISM?
L33          58 L21(5A)(COLI OR BACTER? OR MICROB? OR MICROORGANISM?)

FILE 'BIOTECHNO'
         94549 COLI
        191870 BACTER?
         38419 MICROB?
         18193 MICROORGANISM?
L34          36 L22(5A)(COLI OR BACTER? OR MICROB? OR MICROORGANISM?)

FILE 'WPIDS'
         33382 COLI
        137304 BACTER?
         61736 MICROB?
         60719 MICROORGANISM?
L35          71 L23(5A)(COLI OR BACTER? OR MICROB? OR MICROORGANISM?)

TOTAL FOR ALL FILES
L36         875 L24(5A)(COLI OR BACTER? OR MICROB? OR MICROORGANISM?)

=> s l36 not 2001-2008/py
FILE 'MEDLINE'
       4762264 2001-2008/PY
                 (20010000-20089999/PY)
L37          37 L25 NOT 2001-2008/PY

FILE 'SCISEARCH'
       8922977 2001-2008/PY
                 (20010000-20089999/PY)
L38          47 L26 NOT 2001-2008/PY

FILE 'LIFESCI'
       1103876 2001-2008/PY
L39          25 L27 NOT 2001-2008/PY
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FILE 'BIOTECHDS'
        185055 2001-2008/PY
L40         46 L28 NOT 2001-2008/PY

FILE 'BIOSIS'
       4385470 2001-2008/PY
L41         50 L29 NOT 2001-2008/PY

FILE 'EMBASE'
       4157533 2001-2008/PY
L42         35 L30 NOT 2001-2008/PY

FILE 'HCAPLUS'
       9222289 2001-2008/PY
L43        116 L31 NOT 2001-2008/PY

FILE 'NTIS'
        138437 2001-2008/PY
L44          1 L32 NOT 2001-2008/PY

FILE 'ESBIOBASE'
       2428441 2001-2008/PY
L45         27 L33 NOT 2001-2008/PY

FILE 'BIOTECHNO'
        368875 2001-2008/PY
L46         28 L34 NOT 2001-2008/PY

FILE 'WPIDS'
       7412555 2001-2008/PY
L47         32 L35 NOT 2001-2008/PY

TOTAL FOR ALL FILES
L48        444 L36 NOT 2001-2008/PY

=> dup rem l48
PROCESSING COMPLETED FOR L48
L49         206 DUP REM L48 (238 DUPLICATES REMOVED)

=> d 1-5

L49    ANSWER 1 OF 206  Elsevier BIOBASE  COPYRIGHT 2008 Elsevier Science B.V.
       on STN
AN     2008102484   ESBIOBASE
TI     Acetamido sugar biosynthesis in the euryarchaea
AU     Namboori S.C.; Graham D.E.
CS     D. E. Graham, Department of Chemistry and Biochemistry, University of
       Texas at Austin, 1 University Station A5300, Austin, TX 78712, United
       States.
       E-mail: degraham@mail.utexas.edu
SO     Journal of Bacteriology, (2008), 190/8 (2987-2996), 45 reference(s)
       CODEN: JOBAAY  ISSN: 0021-9193
DT     Journal; Article
CY     United States
LA     English
SL     English

L49    ANSWER 2 OF 206  Elsevier BIOBASE  COPYRIGHT 2008 Elsevier Science B.V.
       on STN
AN     2008094251   ESBIOBASE
TI     Genetic engineering of Escherichia coli for the economical
       production of sialylated oligosaccharides
```

AU Fierfort N.; Samain E.
CS E. Samain, Centre de Recherches sur les Macromolecules Vegetales, BP 53, 38041 Grenoble Cedex 9, France.
E-mail: eric.samain@cermav.cnrs.fr
SO Journal of Biotechnology, (30 APR 2008), 134/3-4 (261-265), 21 reference(s)
CODEN: JBITD4 ISSN: 0168-1656
PUI S0168165608000588
DT Journal; Article
CY Netherlands
LA English
SL English

L49 ANSWER 3 OF 206 BIOTECHDS COPYRIGHT 2008 THOMSON REUTERS on STN
TI A new chitosanase producing microbe, Burkholderia gladioli for manufacturing chitosan oligosaccharide;
Production of chitosan oligosaccharide by Burkholderia gladioli sp. CHB101
AN 2000-06955 BIOTECHDS
PI JP 2000041664 15 Feb 2000

L49 ANSWER 4 OF 206 HCAPLUS COPYRIGHT 2008 ACS on STN
TI Role of oligosaccharides in microbial glycoproteins and synthetic methods of neoglycoproteins
SO Nippon Nogei Kagaku Kaishi (2000), 74(11), 1237-1246
CODEN: NNKKAA; ISSN: 0002-1407
AU Takegawa, Kaoru
AN 2000:810811 HCAPLUS
DN 133:331223

L49 ANSWER 5 OF 206 HCAPLUS COPYRIGHT 2008 ACS on STN
TI Production of heterologous oligosaccharides by recombinant bacteria (recombinant oligosaccharides)
SO Carbohydrates in Chemistry and Biology (2000), Volume 2, 845-860. Editor(s): Ernst, Beat; Hart, Gerald W.; Sinay, Pierre. Publisher: Wiley-VCH Verlag GmbH, Weinheim, Germany.
CODEN: 69AMJE
AU Geremia, Roberto A.; Samain, Eric
AN 2000:717510 HCAPLUS
DN 134:85146

=> d ab
20,31-34,38,41,42,45,55,57,61,63,73,77,78,82,83,93,114,117,118,123,134,137-139,145-147,156,189,204-206

L49 ANSWER 20 OF 206 BIOTECHDS COPYRIGHT 2008 THOMSON REUTERS on STN
AB A means of preparing 6-kestose-oligosaccharides is claimed. It involves treating sucrose with an Acetobacter sp. or Gluconobacter sp., to produce 6-kestose (triose), 6,6-kestotetrose (tetrose) or 6,6,6-kestopentose (pentose). These are used in the conditioning of intestinal function, and the stimulation of mineral absorption or the improvement of lipid metabolism. These allows high yield production of 6-kestose oligosaccharides. The microorganism involved is preferably Acetobacter polysaccharogenes MT-11-2 (FERM BP-112) or Gluconobacter albidus IFO 3250. The bacterium is cultured in a medium at 20-35 deg, pH 5-7 for 5-48 hrs, and then the cultured cells, cell extract, disrupted cells, lyophilized cells or solvent treated cells are used in the reaction. The sucrose solution preferably contains 5-80, especially 10-50% sucrose, and is reacted with the cells or cell product at 20-60, preferably 30-45 deg, and pH 4-8, preferably 5-7 for 2-96, especially 6-24 hr. The 6-kestose oligosaccharides purified from the

product have uses in medicine and food. (10pp)

L49 ANSWER 31 OF 206 SCISEARCH COPYRIGHT (c) 2008 The Thomson Corporation on STN DUPLICATE 13

AB Rhizobial bacteria synthesize lipo-chitin oligosaccharide signal molecules (Nod factors) that are essential for the formation of symbiotic organs on the roots of host plants, a process known as nodulation. Biosynthesis of the chitin oligosaccharide moiety in Nod factors is carried out by the rhizobial N-acetylglucosaminyltransferase NodC. The initial acceptor or primer used for the synthesis of chitin oligosaccharides in vivo is unknown. To investigate the acceptor specificity of NodC, we have synthesized derivatives of N-acetylglucosamine (GlcNAc) with different aglycones and tested whether they are accepters for NodC in vitro using a membrane preparation of an Escherichia coli strain expressing the Mesorhizobium loti chitin oligosaccharide synthase NodC. Analysis of reaction products using thin-layer chromatography shows that GlcNAc derivatives containing simple alkyl chains or other hydrophobic groups linked to C-1 are accepters for NodC. The enzyme appears to be specific for accepters in which the aglycone is beta-linked. GlcNAc derivatives in which the methyl group of the N-acetyl moiety of GlcNAc is replaced by an allyloxy or benzyloxy group are still used as accepters by NodC. The original methyl group at this position therefore does not appear to be essential for the interaction between NodC and GlcNAc. A NodC-dependent reaction product that is more hydrophobic than GlcNAc was detected in reaction mixtures containing 5% methanol but lacking an exogenously added acceptor. This may be due to the presence of a natural hydrophobic glycosyl acceptor for NodC in the membranes of E. coli, but the structure of this reaction product remains to be investigated.

L49 ANSWER 32 OF 206 LIFESCI COPYRIGHT 2008 CSA on STN DUPLICATE 14

AB Chemical syntheses of inner core determinants have been performed to provide defined artificial antigens (BSA-glycoconjugates) for characterization of monoclonal antibodies directed against important epitopes residing in the inner core of bacterial lipopolysaccharides. Efficient block synthesis of Kdo oligosaccharides has been employed to prepare the allyl glycoside corresponding to the Chlamydia-specific Kdo trisaccharide epitope, to be used in crystallization and NMR (transfer NOe) experiments. Human pathogenic strains of Pseudomonas aeruginosa of RNA group I contain a highly phosphorylated heptose region with a 7-O-carbamoyl L-glycero-D-manno-heptose moiety which may be exploited as immunochemical marker for pathogenic Pseudomonas species. The 7-O-carbamoyl-substituted heptoside as well as the disaccharides 7-O-carbamoyl-L-gro- alpha -D-manHepp-(1 arrow right 3)-L-gro- alpha -D-manH epp-(1 arrow right O-Allyl) and alpha -D-GalpNAc-(1 arrow right 3)-L-gro- alpha -D-manHepp-(1 arrow right O-Allyl) were synthesized via regioselective formation of a 6',7'-O-carbonate group followed by ring opening with NH sub(3)/NH sub(4)HCO sub(3) to give the 7-O-carbamate in high yields. Finally, glycosides of the Kdo-isosteric D-glycero-D-talo-2-octulosonic acid (Ko) occurring in Acinetobacter spp. have been prepared via intermediate orthoester formation and TMSO-triflate-catalyzed rearrangement into alpha -ketosides. Coupling with a Kdo bromide donor and deblocking afforded the disaccharide alpha -Kdo-(2 arrow right 4)- alpha -Ko-(2 arrow right O-Allyl).

L49 ANSWER 33 OF 206 MEDLINE on STN DUPLICATE 15

AB Many human pathogens initiate disease by utilizing their microbial adhesin proteins to attach to glycoconjugates on host cell mucosal surfaces. Soluble oligosaccharides of identical or similar structure to these naturally occurring ligands can both prevent bacterial attachment as well

as mediate the release of attached bacteria. Since it has not been possible to isolate large quantities of these compounds, we have developed enzyme-based technologies to synthesize several relevant human oligosaccharides. Using cloned bacterial glycosyltransferases, we can synthesize several hundred grams of these oligosaccharides at a time. The availability of these large quantities will allow these compounds to be tested as anti-adhesive pharmaceutical agents as well as lead to expanded practical applications.

L49 ANSWER 34 OF 206 MEDLINE on STN DUPLICATE 16
AB Synthesis of CMP-deaminoneuraminic acid (CMP-beta-D-Kdn) and its enzymatic transfer reaction using bacterial alpha-(2-->6)-sialyltransferase were examined. CMP-beta-D-Kdn was prepared from methyl 4,5,7,8,9-penta-O-acetyl-3-deoxy-D-glycero-beta-D-galacto-2- nonulopyranosonate (2) in 24% overall yield. Enzymatic synthesis of Kdn oligosaccharide with CMP-beta-D-Kdn (10.2 mumol), methyl beta-D-lactosaminide (7, 8.1 mumol) and purified sialyltransferase (80 munits) afforded Kdn-alpha-(2-->6)-Gal-beta-(1-->4)-GlcNAc-beta-1-OMe in 77% yield.

L49 ANSWER 38 OF 206 HCAPLUS COPYRIGHT 2008 ACS on STN
AB A review with 26 refs. on problems and related strategies of oligosaccharide synthesis using microbial enzymes with subdivision headings: general strategy and problems on oligosaccharide synthesis, enzymes for the synthesis (including microbial glycosyltransferase, glycosidase, phosphorylase), fashioning of the microbial enzyme synthesized oligosaccharide discussed on the enzyme sources, substrate specificity, side reaction, and enzyme technol. to improve oligosaccharide variety, substrate-inversion-rate and purity of oligosaccharide products.

L49 ANSWER 41 OF 206 BIOTECHDS COPYRIGHT 2008 THOMSON REUTERS on STN
AB A method for expressing a glycosyltransferase in a host cell (Escherichia coli) consists of obtaining a host cell substantially lacking a protease that cleaves proteins between 2 consecutive positively charged amino acids, then introducing a nucleic acid, which encodes the enzyme into the cell, incubating the cells under expression conditions, or, introducing a nucleic acid which encodes a glycosyltransferase, where the DNA sequence (specified) lacks at least one occurrence of 2 adjacent codons for positively charged amino acids that are normally present in the enzyme, in to the host cell, are new. Also claimed are: a composition containing the enzyme, obtained using the method mentioned above; a recombinant nucleic acid (N1) with a sequence (specified) as mentioned above; an expression cassette, containing N1 operably linked to a promoter functional in the host cell, containing N1; and a method to transfer a monosaccharide between substrates, which involves, a reaction medium containing glycosyltransferase, a donor and acceptor substrate and a soluble divalent metal cation. The enzyme helps in vitro production of therapeutic oligosaccharides. (33pp)

L49 ANSWER 42 OF 206 BIOTECHDS COPYRIGHT 2008 THOMSON REUTERS on STN
AB A gene is claimed which encodes a beta-galactoside-alpha-2,6-sialyltransferase (I) produced by Photobacterium damsela JT0160 (FERM BP-4900). The DNA sequence of the gene is disclosed. Also claimed are: DNA derived from the gene by addition, deletion or substitution of one or more bases; DNA encoding a signal peptide (the 1st 15 residues of the enzyme sequence); vectors containing the DNA; and production of recombinant (I) or its fragments by culture of a host cell transformed with the vector. (I) is not homologous with known animal sialyltransferases and differs from them in binding to cell membrane at its C-terminal region. Expression of modified gene lacking the portion encoding the C-terminus of (I) produces a soluble form of the enzyme.

(I) catalyzes the incorporation of NeuAc in the 6-position of galactose residues of oligosaccharide chains, and can be obtained readily in high yield by microbial culture for use in specific synthesis of sialylated oligosaccharides. In an example, vector plasmid pEBST is constructed to contain the P. damsela (I) gene and expressed in Escherichia coli MV1184. Clone C2 is obtained, which produces 240 U/l (I) activity in the medium. (60pp)

L49 ANSWER 45 OF 206 MEDLINE on STN DUPLICATE 20

AB The Escherichia coli polyphosphate kinase (PPK) has been known to catalyze the reversible transfer of phosphate molecules between ATP and polyphosphate (poly(P)). It has also been found that the PPK catalyzes the kination of not only ADP but also other nucleoside diphosphates (NDPs) using poly(P) as a phosphate donor, yielding nucleotide triphosphates (NTPs). We used the PPK and poly(P) in place of pyruvate kinase and phosphoenol pyruvate for NTP regeneration followed by synthesis of sugar nucleotides in a cyclic synthesis system for oligosaccharides. It was confirmed that the PPK efficiently catalyzed the UTP regeneration in the cyclic system of N-acetyllactosamine synthesis. This novel activity of PPK enables us to perform the practical synthesis of oligosaccharides.

L49 ANSWER 55 OF 206 SCISEARCH COPYRIGHT (c) 2008 The Thomson Corporation on STN DUPLICATE 26

AB In this article, syntheses of bacterial oligosaccharides containing additional synthetic challenges are presented. In the first part, syntheses of L-glycero-D-manno-heptopyranosyl-containing oligosaccharides are reported. Synthesis of the heptose trisaccharide structures from the core region of lipopolysaccharides from Salmonella and Haemophilus bacteria are described together with larger fragments containing hexoses as well. In the second part, development of reactive beta-selective glucuronic acid thioglycoside donors is presented. These donors, promoted by DMTST, are used to prepare disaccharide structures corresponding to the repeating unit of the capsular polysaccharide from Streptococcus pneumoniae type 3 and to parts of the capsular polysaccharide of Cryptococcus neoformans. In the third and last part, stereoselective synthesis of alpha- and beta-D-fructofuranosides using thioglycoside donors are discussed. With participating benzoyl groups and DMTST as promoter, excellent yields of alpha-linked fructofuranosyl disaccharides are obtained. Application of the internal aglycon delivery approach, with the aglycon tethered to the beta-face of the fructofuranosyl thioglycoside donor as part of a 3-O-p-methoxybenzylidene acetal, produced stereospecifically high yields of beta-linked fructofuranosyl disaccharides, inter alia, structures from the Haemophilus influenzae type e capsular polysaccharide, after activation of the tethered intermediates with DMTST.

L49 ANSWER 57 OF 206 MEDLINE on STN DUPLICATE 27

AB Cultivation of Escherichia coli harbouring heterologous genes of oligosaccharide synthesis is presented as a new method for preparing large quantities of high-value oligosaccharides. To test the feasibility of this method, we successfully produced in high yield (up to 2.5 g/L) penta-N-acetyl-chitopentaose (1) and its deacetylated derivative tetra-N-acetyl-chitopentaose (2) by cultivating at high density cells of E. coli expressing nodC or nodBC genes (nodC and nodB encode for chitooligosaccharide synthase and chitooligosaccharide N-deacetylase, respectively). These two products were easily purified by charcoal adsorption and ion-exchange chromatography. One important application of compound 2 could be its utilisation as a precursor for the preparation of synthetic nodulation factors by chemical acylation.

L49 ANSWER 61 OF 206 HCAPLUS COPYRIGHT 2008 ACS on STN

AB The errors were not reflected in the abstract or the index entries.

L49 ANSWER 63 OF 206 SCISEARCH COPYRIGHT (c) 2008 The Thomson Corporation on STN DUPLICATE 29

AB Di- to penta-saccharide fragments (2-5) of Polysaccharide II (PS-II) of Mycobacterium tuberculosis were synthesized in spacer-linked form in a stepwise fashion using a new glycosyl donor featuring a trans-fused isopropylidene diol-protecting group. Covalent attachment of the oligosaccharides to proteins provides semi-synthetic antigens and immunogens which are being used to probe the role of PS-II as a possible mycobacterial antigen.

L49 ANSWER 73 OF 206 WPIDS COPYRIGHT 2008 THOMSON REUTERS on STN

AB JP 07008287 A UPAB: 20050511

Producing oligosaccharides comprises: (1) inoculating microbes which belong to Saccharomyces and are capable of producing panose in a medium containing maltose as a carbon source, (2) culturing the microbe under an aerobic condition, (3) separating the accumulated panose.

Preferred microbe is Monilella tomentosa.

USE/ADVANTAGE - The panose-containing oligosaccharides improve Lactobacillus bifidus growth, are crystallization-resistant, ageing-resistant, humectant, etc. They have been widely used in foods and drinks such as Japanese alcohol, pharmaceutical drugs, etc. Specifically, panose is not utilised as material for insoluble glucan which is produced by Streptococcus mutans, inhibits production of glucan from sucrose, and also is not utilised as material for acid, showing anti-dental caries activity. Panose-rich oligosaccharides are mass-produced at a lower cost, compared to the conventional methods such as Japanese Patent Disclosure No.171493/89, J.Ferment.Bioeng.Vol73,No3,198-202,1992, etc. which require a high cost or provide a low yield, and Jap-Pat-Disclosure No.122696/88 which prepare panose from maltose or isomaltose but requires complicated manipulations for controlling reaction.

L49 ANSWER 77 OF 206 HCAPLUS COPYRIGHT 2008 ACS on STN

AB A system for studying the in vivo activity of Rhizobium NodC protein in Escherichia coli has been developed. Using thin-layer chromatog., high-performance liquid chromatog., and mass spectrometry, the authors show that in this system R. leguminosarum bv. viciae NodC protein directs the synthesis of chitinpentaose, chitintetraose, chitintriose, and two as yet unidentified modified chitin oligosaccharides.

L49 ANSWER 78 OF 206 MEDLINE on STN DUPLICATE 32

AB Our stock cultures were screened for microorganisms that can produce galacto-oligosaccharide (Gal-OS) from lactose.

Of the 574 strains of bacteria and yeasts tested, Sterigmatomyces elviae CBS8119, Rhodotorula minuta IFO879, and Sirobasidium magnum CBS6803 were found to be efficient producers of Gal-OS from lactose and S. elviae CBS8119 was selected as a representative, high-level producing strain. With toluene-treated resting S. elviae CBS8119 cells, 135 mg of Gal-OS per ml was produced from 360-mg/ml lactose. During this reaction, the by-product glucose was found to inhibit Gal-OS production. Therefore, in order to remove the glucose from the reaction mixture, a culture method in which cell growth followed the enzymatic reaction was devised, which increased the yield of Gal-OS considerably because of the consumption of glucose for cell growth. Under such conditions, 232 mg of Gal-OS per ml was produced from 360-mg/ml lactose after incubation at 30 degrees for 60 h. The structure of the major product was identified as O-beta-D-galactopyranosyl-(1-->4)-O-beta-D-galactopyranosyl-(1-->4)-D-glucopyranose (4'-galactosyl-lactose) by 13C nuclear magnetic resonance spectroscopy.

L49 ANSWER 82 OF 206 SCISEARCH COPYRIGHT (c) 2008 The Thomson Corporation

on STN DUPLICATE 34

AB An overview is given of various biotechnical carbohydrate modifications. Fermentation and bioconversion processes, based on carbohydrate substrates for production of mono-, di- and oligosaccharides and the microbial synthesis of various useful polysaccharides are discussed as well as the microbial/enzymatic hydrolysis of polysaccharides into valuable oligomers or di- and monomeric sugars.

L49 ANSWER 83 OF 206 HCAPLUS COPYRIGHT 2008 ACS on STN

AB A review with 34 refs. on large scale and efficient synthesis of complex human oligosaccharides as bactericides, virucides, and anti-inflammatory agents.

L49 ANSWER 93 OF 206 HCAPLUS COPYRIGHT 2008 ACS on STN

AB Recombinant Escherichia coli with a porous cell wall and containing periplasmic α-1,2-mannosyltransferase was used in the mannosylation of a series of D-mannose containing acceptors. Yields in the α-1,2-mannosylation step of the acceptor mannose moiety ranged 42-75% for D-mannose, Me D-mannoside, mannosylthreonine, and a mannosyltripeptide.

L49 ANSWER 114 OF 206 BIOTECHDS COPYRIGHT 2008 THOMSON REUTERS on STN

AB The recent development of enzyme-catalyzed reactions for the production of sugars, peptides and related substances was discussed. Topics considered included: the preparation of uncommon and aza sugars by aldolase-catalyzed aldol condensation followed by Pd-mediated reductive amination; methods for enzyme-catalyzed glycosylation using glycosyltransferase, glycosidase, transglycosidase and phosphorylase enzymes; large-scale production of oligosaccharides catalyzed by glycosyltransferases with in situ regeneration of sugar nucleotides; the coupling of glycosidase- and glycosyltransferase-catalyzed reactions for oligosaccharide production with minimal requirements for sugar nucleotide regeneration; cloning and expression of the catalytic domain of glycosyltransferase for oligosaccharide production in Escherichia coli; the glycosyltransferase-catalyzed production of uncommon oligosaccharides such as sialyl Lewis x and sialyl Le(x) glycal; production of large peptides and their conjugates; the use of enzyme engineering to make enzymes more stable in dimethylformamide; and engineering subtilisin (EC-3.4.21.14) to catalyze ligation reactions. (58 ref)

L49 ANSWER 117 OF 206 BIOTECHDS COPYRIGHT 2008 THOMSON REUTERS on STN

AB A method to prepare a galacto-oligosaccharide of the formula Gal-(Gal)n-Glc (where Gal = galactose, Glc = glucose and n = 1-3) and gluconic acid, comprises treating lactose or a material containing lactose with a microbe able to produce galacto-oligosaccharide such as Sterigmatomyces elviae CBS-8119, Sirobasidium mugnum CBS-6803 or Rhodotorula minuta IFO-879. The method is characterized by: (a) carrying out the treatment in the presence of glucose-oxidase (EC-1.1.3.4); (b) removing the microbial body; and (c) recovering galacto-oligosaccharide and gluconic acid from the culture liquid by ionexchange chromatography. Glucose is a by-product of this fermentative process, and acts as an inhibitor for the reaction. Thus, gluconic acid may be produced as a by-product from glucose under moderate conditions, and the galacto-oligosaccharide may be produced in high yield. (4pp)

L49 ANSWER 118 OF 206 HCAPLUS COPYRIGHT 2008 ACS on STN

AB The title method involves limitation of a monosaccharide C source to alter the capacity of the culture to utilize higher sugars. The start of the adjustment of metabolic capacity of the microorganism is dependent on the

pH curve during the free pH change of the primary growth phase. The critical concentrate of biomass at the end of the primary growth phase is maintained by ample aeration and fed-batch or repeated fed-batch addition of substrates. Disaccharides and proteins are used based on the pH profile. This method was applied to the synthesis of benzypenicillin from phenylacetic acid with Penicillium chrysogenum.

L49 ANSWER 123 OF 206 HCAPLUS COPYRIGHT 2008 ACS on STN
AB A review with 96 refs. on the preparation of plant-related galacturonic acid-containing oligosaccharides, vertebrate, and bacterial cell-wall glycans.

L49 ANSWER 134 OF 206 WPIDS COPYRIGHT 2008 THOMSON REUTERS on STN
AB JP 02072890 A UPAB: 20050430
Production of galactooligosaccharide comprises (1) allowing microbe belonging to Rhodotorula, Sterigmatomyces or Sirobasidium, having ability to generate galactooligosaccharide of formula Gal-(Gal)n-Glc (I) from lactose, to act on lactose to generate galactooligosaccharide and (2) extracting it. In (I), Gal = galactose residue, Glc = glucose residue, n = 1-3.
Microbe used is e.g. Rhodotorula minuta IFO 879, Sterigmatomyces elviae FERM-10001 or Sirobasidium magnum CBS 6803. It is cultured in medium containing carbohydrate such as glucose or sucrose, alcohol such as ethanol or glycerol, organic acid such as acetic acid or propionic acid, carbon source such as soybean oil, nitrogen-containing nutriment such as yeast extract, peptone or ammonium sulphate, inorganic nutriment such as phosphate, Mg or Fe, vitamin such as biotin or thiamine, at pH 4.0-9.5 for 12-60 hrs. at 20-40 deg.C.
USE/ADVANTAGE - Galactooligosaccharide is produced efficiently by the method. Oligosaccharide containing galactose residue is propagation factor of Bifidobacterium.

L49 ANSWER 137 OF 206 HCAPLUS COPYRIGHT 2008 ACS on STN
AB A review with 53 refs. on enzymic synthesis of oligosaccharides by transglycosylation. Topics include synthesis by (1) transglucosylation of α-, β-, and γ-cyclodextrins, 4-α-D-glucosyl-sucrose ("Coupling sugar"), etc. by cyclomaltodextrin glucanotransferase, several other oligosaccharides by amylomaltase, α-glucosidase, debranching enzymes (pullulanase and isomaltase), maltose phosphorylase, sucrose phosphorylase, α-glucosyltransferase (palatinose etc.), β-glucosidase, β-glucosyltransferase, and cellobiose phosphorylase, (2) transgalactosylation by α- and β-galactosidases and β-galactanase, (3) transfructosylation by levan sucrase, β-fructofuranosidase, inulin fructotransferase, and levan fructotransferase. Many of the oligosaccharides synthesized are valuable as agents against dental caries, for promoting Bifidus factors, or low-calorie sweeteners.

L49 ANSWER 138 OF 206 HCAPLUS COPYRIGHT 2008 ACS on STN
AB A review with 15 refs. of the production of oligosaccharide derivs. from sucrose using microbial, enzymic, and chemical methods. Selective oxidation of sucrose and synthesis of oligosaccharides are covered.

L49 ANSWER 139 OF 206 SCISEARCH COPYRIGHT (c) 2008 The Thomson Corporation on STN DUPLICATE 47

L49 ANSWER 145 OF 206 HCAPLUS COPYRIGHT 2008 ACS on STN
AB A review with 34 refs of the functional properties of oligosaccharides, especially galactooligosaccharides, and their production by microbial enzymes, including galactanase of Penicillium citrinum.

L49 ANSWER 146 OF 206 HCAPLUS COPYRIGHT 2008 ACS on STN
AB A review with, 46 refs., on synthesis of oligosaccharides by microbial enzymes, such as glucosyl, galactosyl, and fructosyl transferases.

L49 ANSWER 147 OF 206 SCISEARCH COPYRIGHT (c) 2008 The Thomson Corporation on STN

L49 ANSWER 156 OF 206 HCAPLUS COPYRIGHT 2008 ACS on STN
AB A review on newly developed noncarcinogenic or low-calorie sweet oligosaccharides with 25 refs. Topics include oligosaccharides produced by transglycosylating action of cyclodextrin glucanotransferase (EC 2.4.1.19), amylomaltase (EC 2.4.1.25), α-glucosidase (EC 3.2.1.20), α- and β-galactosidase (EC 3.2.1.22 and 23), levansucrase (EC 2.4.1.10), and β-fructofuranosidase (EC 3.2.1.26).

L49 ANSWER 189 OF 206 WPIDS COPYRIGHT 2008 THOMSON REUTERS on STN
AB JP 55108887 A UPAB: 20050419
Oligosaccharide A has following properties: elementary analysis: C 41.52%; H 6.50%; mol.weight: 504; m.pt. 202-4 degrees C; specific rotary power alpha 22-D + 45 degrees (c=1.5 water); IR spectrum: 1150-980, 910, 890 and 770 (cm-1). It is easily soluble in water; insoluble in Me2CO, alcohols, CHCl3 and benzene; and sparingly soluble in hydrous alcohols. Colour reactions are positive in aniline-phthalic acid reaction and NH3-AgNO3 reaction; negative in ninhydrin reaction and FeCl3. It is a neutral cpd. in form of white needle-like crystals. Bound saccharide is galactose (beta-D-linkage).
Preparation comprises cultivating a microorganisms of genus Bacillus capable of producing oligosaccharide A, specifically Bacillus sp. KO-24B (FERM-P Number 4773), and recovering oligosaccharide A from the culture.

L49 ANSWER 204 OF 206 MEDLINE on STN DUPLICATE 68

L49 ANSWER 205 OF 206 BIOSIS COPYRIGHT (c) 2008 The Thomson Corporation on STN DUPLICATE 69
AB Washed cells of E. Coli (Monod strain) were incubated with maltose in the presence of iodoacetate, and the extracellular saccharides were fractionated on a charcoal column. The fractions were subjected to paper-chromatographic analysis, methylation and end-group assay, and oxidation with both hypoiodite and periodate. In addition, the molecular wts. of their acetates were determined By these methods the saccharides were shown to include glucose, maltose, and the lower members of the homologous series of glucose polymers containing the 1;4-alpha-glucosidic linkage. ABSTRACT AUTHORS: Auth. abst

L49 ANSWER 206 OF 206 MEDLINE on STN DUPLICATE 70

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